

Title (en)

Integral add heat and surge control valve for compressor

Title (de)

Integriertes Regelventil für einen Verdichter zur Steuerung der Wärmezufuhr und des Pumpens

Title (fr)

Soupape intégrée d'un compresseur pour la régulation de l'apport de chaleur et du pompage

Publication

EP 1783048 A2 20070509 (EN)

Application

EP 06255673 A 20061103

Priority

US 26908205 A 20051108

Abstract (en)

A compressed air system (10) includes a compressor having an inlet (20) and an outlet (22). A duct (30) fluidly connects the outlet (22) to the inlet (20) and has a valve (32) arranged in the duct (30). A controller (34) communicates with the valve (32) and commands the valve (32) to move between first and second positions (F,S) in response to a surge condition and/or an add-heat condition to regulate an amount of fluid flowing through the duct (30). The valve (32) opens to provide hot air from the compressor outlet to deice the inlet (20) or to provide the higher pressure compressor outlet air to the lower pressure compressor inlet air to obtain a pressure ratio in a desired range. The inventive compressed air unit is designed to provide a compact arrangement so that the valve (32) providing the heated, pressurized air to the inlet (20) is located in close proximity to the inlet (20) for a rapid response time. The duct (30) comprises a relatively short length of tubing interconnecting an add-heat supply outlet (74) and an add-heat plenum inlet (76), which are provided by a housing (40) of the compressor. The housing also includes an add-heat plenum (72) having an annular wall (70) arranged at the inlet (20) to provide an annular cavity (72). Hot air from the compressor outlet is provided to the plenum (72) to heat the annular wall (70) quickly at the inlet (20) to prevent deicing.

IPC 8 full level

B64D 13/02 (2006.01); **B64D 13/06** (2006.01)

CPC (source: EP US)

B64D 13/02 (2013.01 - EP US); **B64D 13/06** (2013.01 - EP US); **F04D 25/06** (2013.01 - EP US); **F04D 27/0238** (2013.01 - EP US); **F04D 29/4213** (2013.01 - EP US); **F04D 29/5806** (2013.01 - EP US); **F04D 29/584** (2013.01 - EP US); **B64D 2013/0607** (2013.01 - EP US); **B64D 2013/0644** (2013.01 - EP US); **Y02T 50/50** (2013.01 - EP US)

Citation (applicant)

EP 0676545 A2 19951011 - COMPRESSOR CONTROLS CORP [US]

Cited by

CN103062130A; EP2602191A1; CN107862116A; US9157446B2; US10184481B2; US10962016B2

Designated contracting state (EPC)

DE FR GB IT

Designated extension state (EPC)

AL BA HR MK RS

DOCDB simple family (publication)

US 2006067833 A1 20060330; EP 1783048 A2 20070509; EP 1783048 A3 20090819; EP 1783048 B1 20110608; EP 2377759 A1 20111019; EP 2377759 B1 20151014; JP 2007132344 A 20070531; JP 4722012 B2 20110713

DOCDB simple family (application)

US 26908205 A 20051108; EP 06255673 A 20061103; EP 11004627 A 20061103; JP 2006297277 A 20061101